

trary of this will happen, if 17. and 18. be calculated in stead of 16. and 17. both which does most exactly agree with the *Phænomena*: For if the Sun, or a Candle (which is better) be placed about *E e*, and the eye about *P p*, the Rays *E F e f*. at 16. and 17. will paint the side of the luminous object toward *n p* *Blue*, and towards *N P* *Red*. But the quite contrary will happen when *E F* is 17. and *e f* 18. for then towards *N P* shall be a *Blue*, and towards *n p* a *Red*, exactly according to the calculation. And there appears the *Blue* of the Rainbow, where the two *Blue* sides of the two Images unite, and there the *Red* where the two *Red* sides unite, that is, where the two Images are just disappearing; which is, when the Rays *E F* and *N P* produc'd till they meet, make an Angle of about 41. and an half; the like union is there of the two Images in the Production of the *Secondary Iris*, and the same causes, as upon calculation may appear; onely with this difference, that it is somewhat more faint, by reason of the duplicate reflection, which does always weaken the impulse the oftner it is repeated.

Now, though the second refraction made at *N n* be convenient, that is, do make the Rays glance the more, yet is it not altogether requisite; for it is plain from the calculation, that the pulse *d n* is sufficiently *oblique* to the Rays *K N* and *k n*, as well as the pulse *f c* is *oblique* to the Rays *F K* & *f k*. And therefore if a piece of very fine Paper be held close against *N n* and the eye look on it either through the Ball as from *D*, or from the other side, as from *B*. there shall appear a Rainbow, or colour'd line painted on it with the part toward *X* appearing *Red*, towards *O*, *Blue*; the same also shall happen, if the Paper be placed about *K k*, for towards *T* shall appear a *Red*, and towards *V* a *Blue*, which does exactly agree with this my *Hypothesis*, as upon the calculation of the progress of the pulse will most easily appear.

Nor do these two observations of the colours appearing to the eye about *p* differing from what they appear on the Paper at *N* contradict each other; but rather confirm and exactly agree with one another, as will be evident to him that examines the reasons set down by the ingenious *Des Cartes* in the 12. *Seç.* of the 8. *Chapter of his Meteors*, where he gives the true reason why the colours appear of a quite contrary order to the eye, to what they appear'd on the Paper if the eye be plac'd in stead of the Paper: And as in the *Prisme*, so also in the *Water*, *Drop*, or *Globe* the *Phænomena* and reason are much the same.

Having therefore shewn that there is such a propriety in the *prisme* and *water Globule* whereby the pulse is made *oblique* to the progressive, and that so much the more, by how much greater the refraction is, I shall in the next place consider, how this conduces to the production of colours, and what kind of impresson it makes upon the bottom of the eye; and to this end it will be requisite to examine this *Hypothesis* a little more particularly.

First therefore, if we consider the manner of the progress of the pulse, it will seem rational to conclude, that that part or end of the pulse which precedes the other, must necessarily be somewhat more *obtunded*, or *impeded* by

Schem. VI.

